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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,506	01/23/2002	Stephen T. Wellinghoff	SWRI-2835-03	4321
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PAULA D. MORRIS & ASSOCIATES, P.C. d/b/a THE MORRIS LAW FIRM, P.C. 10260 WESTHEIMER, SUITE 360 HOUSTON, TX 77042-3110				
EXAMINER SADULA, JENNIFER R				
ART UNIT		PAPER NUMBER		
1756				

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,506

Applicant(s)

WELLINGHOFF ET AL.

Examiner

Jennifer R. Sadula

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/7/04; 8/10/04 and 9/27/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 105-141 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 105-141 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/20/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

The following Office Action is a complete response to the amendment and arguments filed 4/7/04, 8/10/04 and 9/27/04.

Response to Amendment

Applicant's amendments filed 8/10/04 have been fully considered. All previous claims have been cancelled and new claims 105-141 have been added.

Claim Objections

Claim 137 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 137 recites that the blend has a T_c of from about 20°C to about 37°C. Claim 137 depends from claim 121 which depends from claim 108 which depends from claim 106. Claim 106 recites that the blend has a T_c of from about 20°C to about 37°C.

Claim 120 is objected to because it is unclear what is being selected from this group whose consistency is as listed.

Double Patenting

Claims 105-141 of this application conflict with claims 1-18, 24-35, 39-107 of Application No. 10/056,121 which was allowed on 7/28/2003. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

Examiner notes that Applicants argue that the blend as claimed in the patented application is different from the method of providing the blend as claimed in the present application. Examiner notes that every invention of a device or composition provides for the provision of said device or composition if the provision of such lacks any further steps in the process or method. A chemical compound can be defined by "its method of preparation, its physical or chemical properties, or whatever characteristics sufficiently distinguished it [from other materials]." *Ex parte Deuel*, 33 U.S.P.Q.2d 1445, 1448 (B.P.A.I. 1993), reversed 51 F.3d 1552, 34 U.S.P.Q.2d 1210 (Fed. Cir. 1995). It is clear to the Examiner and would be clear to one of ordinary skill that the present application's claims would be anticipated by the claims of the patented application and thus the rejection stands.

it has not yet been patented.

Sp

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 105-141 are rejected under 35 U.S.C. 102(e) as being anticipated by Seiberle et al., U.S. Patent No. 6,649,230 (“Seiberle”).

Applicant claims a blend comprising randomly substituted mesogens and methods for producing such blends comprising the polymerizable platform molecules as specified.

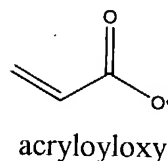
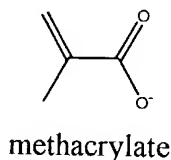
Examiner wishes to bring by stating that although Applicants’ limit R^1 and R^3 to be selected from “groups less bulky than R^2 ” it is clear to the Examiner that H groups are “less bulky” than any organic group R^2 could comprise and therefore such limitation was searched.

With regard to Applicants’ claims 105, 126 and 138, Seiberle teaches photoactive polymers of the general formula I wherein the combination of S^5 -M (the pendant moiety off of aromatic group B) consists of a “bulky organic group”. The rings E and D (when n^1 and $n^2=0$) may each be phenyl rings as shown in the examples (see column 22, example 1 and mon 1 in columns 35-36). Applicants’ R^1 and R^3 are both either H or may further be F, Cl, CN, or cyclic, straight-chain or branched alkyl residue which is further substituted or unsubstituted (6:9-24). The P- S^1 group of Seiberle anticipates Applicants’ Y-group consisting of a terminal functionality and a spacer group. The R^1 of Seiberle anticipates Applicants’ X- group wherein

Art Unit: 1756

the R¹ group may or may not be polymerizable (6:42-53). With regard to Applicants' claims 107-108, as it is preferred by Seiberle to have only one polymerizable terminal unit, clearly this anticipates when 50%, 60% or even 70% of the blended material has X as a terminal functionality and Y as a polymerizable functionality.

With regard to Applicants' claims 109-118 and subsequently claims 127-129 and 139), Seiberle teaches that the preferred polymerizable groups are those of general formula II or III (column 7) are methacrylates or acryloyloxy groups as each group is (in respective order):



thereby satisfying the limitations of these claims.

With regard to Applicants' claims 119-125 (and subsequently 130-131 and 140-141), Seiberle teaches the terminal functionalities of the R¹ group to include straight and branched chain alkyl residues where are substituted or unsubstituted as specified having C₁-C₁₂ atoms (11:29-46), thereby anticipating hydroxyl groups as C₁, when substituted with an O group becomes a hydroxyl group and anything higher than C₁ (ie C₂-C₁₂) anticipates an alkoxy group or spacer group depending on if it is substituted or not.

With regard to Applicants' claims 106 and 132-137, Examiner notes that the term "room temperature" defines approximately 21-23°C. Seiberle teaches that the materials in the examples are prepared at room temperature and then the reaction mixture is partitioned between dichloromethane and water; the organic phase washed repeatedly with water, dried over sodium sulfate, filtered and concentrated by rotary evaporation. This satisfies the Applicants' limitation that the curing temperature T_c be from "about 20°C to about 37°C".

Claims 105-141 are rejected under 35 U.S.C. 102(b) as being anticipated by Schadt et al., U.S. Patent No. 6,144,428 ("Schadt").

Schadt teaches an optical component comprising a hybrid layer formed from an orienting layer and a layer of cross-linked liquid crystalline monomer (abstract) wherein the liquid crystalline monomers are diacrylate components as shown in columns 3-6. Therefore, Schadt teaches, in accordance with Applicants' claimed invention, a blended material wherein one or more platform molecules having the expressed terminal substituents as shown (representing Applicants' X and Y) corresponds to Applicants' general structure wherein Applicants' R^1 and R^3 are "groups less bulky than R^2 " as it is clear to the Examiner that H groups are "less bulky" than any organic group R^2 (the substituent on the central ring) could be. However in each of Mon1, Mon2 and Mon3 of Schadt the substituents on the central ring are more substantial than the H-substitutions on the two outer rings- however this is most prevalent in Mon1.

With regard to Applicants claims 107-108 it is clear that the blend comprises more polymerizable monomers of the Applicants' composition formula 1 than non-polymerizable.

With regard to Applicants' claims 109-118 and subsequently claims 127-129 and 139), Schadt teaches that the preferred polymerizable groups are as shown in the monomers of column 3-6 wherein the polymerizable groups are acryloyloxy groups (as defined and shown above), or more specifically acryloyloxy alkoxy groups, thereby satisfying the limitations of these claims.

With regard to Applicants' claims 106 and 132-137, Examiner notes that the term "room temperature" defines approximately 21-23°C. Schadt teaches that these components were used to develop a super-coolable nematic mixture having a particularly low melting point so that the

Art Unit: 1756

LCP layer could be prepared at room temperature (5:10-15). This satisfies the Applicants' limitation that the curing temperature T_c be from "about 20°C to about 37°C".

Claims 105-141 are rejected under 35 U.S.C. 102(b) as being anticipated by Jolliffe et al., U.S. Patent No. 6,117,920 ("Jolliffe").

Jolliffe teaches a thermochromic polymerizable mesogenic composition comprising components MA and MB (2:61-65) wherein the polymerizable components MA are selected from formula I $P-(Sp-X)_n-MG-R$ wherein R may be $P-(Sp-X)_n$ thereby granting the option that either one or both ends of the component be polymerizable. MG is defined in column 5 as $A^1-Z^1-A^1-Z^1-A^2-$ which is preferably, as shown in the table in column 6, as a three-ring mesogenic group such as $-Phe-Z^1-PheL-Z^1-Phe-$; $-PheL-Z^1-PheL-Z^1-PheL-$; $-Phe-Z^1-PheL-Z^1-PheL-$; or $-PheL-Z^1-PheL-Z^1-Phe-$. With regard to Applicants' claims 1 and 55, either option anticipates Applicants' three-ring mesogenic groups as L- the substituent group dangling off of either phenyl group (particularly central)- is halogen, cyano, nitro, C_1-C_7 alkyl, C_1-C_7 alkoxy or C_1-C_7 alkanoyl where one or more H atoms may be substituted by F or Cl (5:18-28). C7 compounds indeed provide for anticipation of Applicants' "bulky organic group".

With regard to Applicants' claims 107-108, as it is preferred by Jolliffe to have at least one polymerizable terminal unit, clearly this anticipates when 50%, 60% or even 70% of the blended material has X as a terminal functionality and Y as a polymerizable functionality.

With regard to Applicants' claims 109-118 and subsequently claims 127-129 and 139), Jolliffe teaches that the preferred polymerizable groups are vinyl, acrylate, methacrylate, propenyl ether or epoxies (4:65-67) thereby satisfying the limitations of these claims.

Preferably, as noted in that passage, the groups are acrylates or methacrylates. Jolliffe further teaches that when the R group is not polymerizable it is an alkyl radical with up to C₂₅ which may be substituted or unsubstituted and may be a sulfur containing, amino, sulfahydryl, halogen or the like (3:40-51). With regard to Applicants' claims 106 and 132-137, Examiner notes that the term "room temperature" defines approximately 21-23°C. Jolliffe teaches that the materials be given short bursts of UV light at different temperatures in order to cure the materials. Some of the polymer cures at "room temperature", 25°C, 30°C and 35°C (26:31-46) thereby satisfying the limitations of these claims.

Response to Arguments

Applicant's arguments filed 9/27/04 have been fully considered but they are not persuasive. Applicants sole argument is that the references teach the polymer but not the method of a provision of the polymer. Examiner notes that, as stated above in the double patenting rejection, the blend as taught in the references is no different from the method of providing the blend as claimed in the present application. Examiner notes that inherent to every invention of a device or composition is a provision of said device or composition if the provision of such device or composition lacks any further steps in the process or method. A chemical compound can be defined by "its method of preparation, its physical or chemical properties, or whatever characteristics sufficiently distinguished it [from other materials]." (*Ex parte Deuel*, see above). It is clear to the Examiner and would be clear to one of ordinary skill that the present application's claims are anticipated by the teachings of these references and thus the rejection stands.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references each teach Applicants' polymerizable mesogenic units as specified:

- A. Verrall et al and Parri et al. each teach where the substituent on the central phenyl ring is C₁-C₇.
- B. Coates et al '461 teaches where the substituent on the central phenyl ring is C₁-C₆.
- C. Broer et al teaches where the substituent on the central phenyl ring is C₁-C₆ but is cured at what appears to be too high of a temperature.
- D. Coates et al '092 and Coates et al. '955 each teach where the substituent on the central phenyl ring is C₁-C₄.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

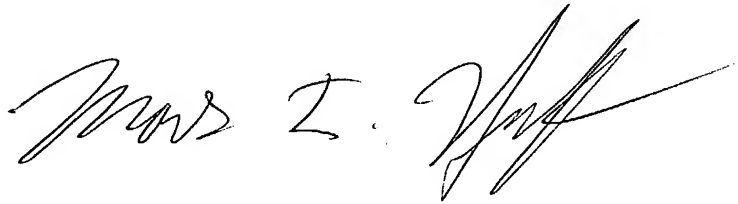
Application/Control Number: 10/057,506
Art Unit: 1756

Page 10

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer R. Sadula whose telephone number is 571.272.1391. The examiner can normally be reached on Monday through Friday, 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571.272.1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.



JRS
November 16, 2004

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